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Lourdes Juan* (lourdes.juan@ttu.edu), Department of Mathematics, Texas Tech University, Box 1042, Lubbock, TX 79410, and **Andy R. Magid** (amagid@math.ou.edu), Department of Mathematics, University of Oklahoma, Norman, OK 73019. *Differential Central Simple Algebras and Non-commutative Picard-Vessiot Cocycles.*

Let K be a differential field of characteristic zero with algebraically closed subfield of constants C . A differential central simple algebra, and in particular a differential matrix algebra, over K is trivialized by a Picard-Vessiot extension E of K . This yields a bijection between isomorphism classes of differential algebras and Picard-Vessiot cocycles $Z^1(G(E/K), PGL_n(C))$ which cobound in $Z^1(G(E/K), PGL_n(E))$. We will prove these results and illustrate how the differential Brauer group of an algebraically closed field can be non trivial. (Received February 19, 2007)